Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

1
Ag84L
Cop. 2

505

U.S. DEPT. OF AGRICULTURE
LIBR
APR 20 1962
CURRENT SERIAL RECORDS

TUBERCULOSIS IN LIVESTOCK

- *Cattle*
- *Poultry*
- *Swine*

Leaflet No. 505
U.S. DEPARTMENT OF AGRICULTURE

TUBERCULOSIS IN LIVESTOCK

- *Cattle*
- *Poultry*
- *Swine*

Tuberculosis occurs in livestock throughout the world. The disease is found most often in cattle, poultry, and swine. Other domestic animals also are susceptible.

Tuberculous animals are the usual source of infection; they may spread bacteria, which may cause severe outbreaks. These bacteria are both infectious and contagious. Their characteristics and the course of the disease vary with the species of animal affected.

The disease makes little change in an animal's outward appearance. For this reason, tuberculosis infection cannot normally be detected through a visual examination of a living animal. Accurate diagnosis is based on the tuberculin test.

It is neither practical nor economical to treat infected livestock for tuberculosis or to vaccinate uninfected livestock against the disease.

Tuberculosis can be eradicated from livestock if current knowledge about the disease is fully used. Disease eradication programs in the United States and Canada have greatly reduced tuberculosis rates in cattle. Several countries have reported eradication of the disease in cattle.

Relaxation of this Nation's continuing efforts to eradicate the disease would result in a marked increase in tuberculosis in the livestock of the United States.

INFECTION RATES

Nine million cattle were tested for tuberculosis in this country in 1959–60. These tests found more than 14,000 reactors—or 1 infected animal in each 650 tested. In 1920—when the U.S. eradication program was getting underway—1 animal of each 20 tested was a reactor.

In 1960, 385,000 chickens were condemned under Federal poultry inspection because of tuberculosis.

Of the more than 70 million swine slaughtered under Federal meat inspection in 1959, 2.78 percent revealed lesions of tuberculosis. Almost 6,000 whole carcasses were condemned because of tuberculosis.

CAUSE

The bacteria that cause tuberculosis are so small that it would take

16,000, laid end-to-end, to measure 1 inch. There are three principal species:

- *Mycobacterium tuberculosis*, which causes the human type of tuberculosis.
- *Mycobacterium bovis*, which causes the bovine type.
- *Mycobacterium avium*, which causes the avian type.

The three species of bacteria—all of which are similar—can be distinguished through laboratory tests.

These bacteria are difficult to destroy. They may live in nature for a year or longer.

SUSCEPTIBILITY

Constant heavy exposure to tuberculous livestock increases any animal's chances of developing tuberculosis. Any other conditions that keep an animal under constant strain may increase its susceptibility to the disease. The state of health and the susceptibility of the infected animal affect the course taken by the disease.

Animals differ widely in their susceptibility to species of tuberculosis bacteria.

Cattle are readily infected with the bovine type of tuberculosis. Human and avian types usually do not cause progressive or generalized infections in cattle.

Poultry can be infected only by the avian type of tuberculosis.

Swine may become infected with any of the three types.

Tuberculosis is found less frequently in sheep, goats, horses, and mules.

Dogs may be infected with the human type of tuberculosis after exposure from a tuberculous owner. Bovine and avian types of the disease seldom are found in dogs.

Cats are susceptible to bovine and human types of tuberculosis. They may get the bovine type when they are fed contaminated, unpasteurized cow's milk.

Man is susceptible to the human type of tuberculosis. He may develop the bovine type if exposure is severe. The usual source of bovine infection is unpasteurized milk from tuberculous cows. The avian type seldom is found in man.

DEVELOPMENT

When tuberculosis-producing bacteria enter body tissues, they im mediately cause irritation. Defensive body cells react by trying to prevent the bacteria from producing the disease.

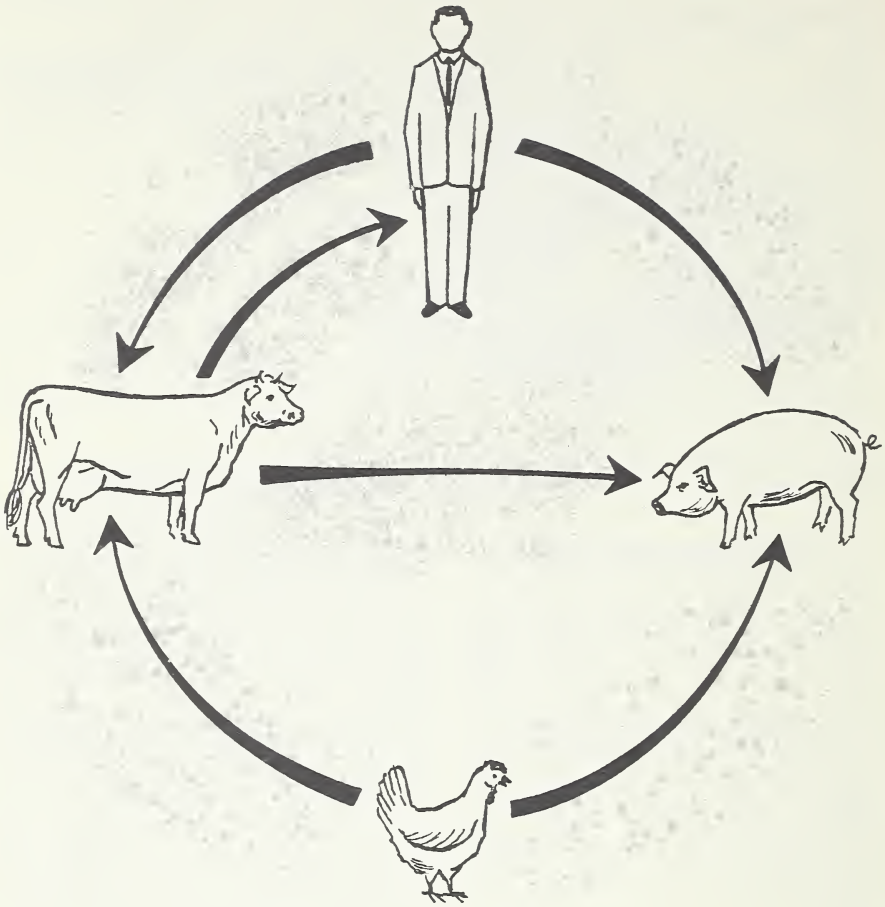
If the cells succeed in building a protective wall around the bacteria, an arrested lesion is formed.

If the cells do not completely seal off the bacteria, an open lesion is formed. Bacteria from open lesions spread to other parts of the body and may produce more lesions. In some advanced cases of tuberculosis, body cavities may contain many open lesions.

SPREAD

Tuberculosis bacteria usually are spread from herd to herd and flock to flock by infected animals. They may be spread from animal to animal by direct contact or by contaminated environment.

Bacteria always are involved in the spread of this disease. They usually enter the body in contaminated feed, water, or air. If open lesions develop



in the lungs, intestines, genitals, or urinary tract, bacteria are eliminated in body wastes. These wastes then contaminate the environment—feed, water, soil, or quarters. Bacteria exhaled or coughed up by an infected animal may be spread in the air.

Feces from infected animals may be a major source of the spread of tuberculosis, particularly in poultry. Wherever contaminated manure accumulates, bacteria may survive for years.

Bacteria may be spread by contaminated equipment.

Cows with tuberculosis may spread the disease in raw milk. Proper pasteurization will kill tuberculosis bacteria, however.

Tuberculosis does not usually spread from hog to hog. Pigs may get the disease by nursing a sow with an infected udder. Swine—because of their feeding habits—may be exposed to all three types of tuberculosis:

- To the bovine type in cattle-feeding lots where hogs eat bacteria-laden manure.
- To the avian type on farm lands contaminated with infective chicken

droppings, or on farms where infected chickens are eaten by hogs.

- To the human type from uncooked infective garbage or from the coughing and spitting of a tuberculous attendant.

Cattle and other livestock also may get the disease from an attendant who has tuberculosis.

PREVENTION

Tuberculosis can be prevented only if animals are not exposed to the disease-producing bacteria. It is not always possible to protect animals completely, but good management and sanitation can reduce the chances of infection.

Preventing the disease in swine depends on controlling and eradicating tuberculosis in cattle and poultry.

To prevent or minimize outbreaks of tuberculosis in livestock—

- Do not allow different species of animals to mingle with each other.
- Have all people who work with your animals tested for tuberculosis.
- Every visitor should wash his hands thoroughly and clean his footwear before he enters and after he leaves any area that contains livestock.
- Know the general health status of all your animals.
- Keep animal quarters clean.

If tuberculosis has been found on your farm, determine the source of infection and get rid of it. Give all contaminated areas a thorough cleaning so that disinfectants can reach—and thus kill—remaining tuberculosis bacteria.

In barns, poultry houses, and other buildings that have been used to house tuberculous animals—

- Clean the interior thoroughly. Remove trash, bedding, and manure; then wash walls, ceilings, and floors with hot water and detergent.
- When the area has been completely cleaned, use a USDA-approved chemical disinfectant to kill tuberculosis bacteria.

In outdoor areas that have been used by tuberculous animals—

- Clean contaminated areas thoroughly so direct sunlight can reach all reservoirs of infection. (Direct sunlight is effective in killing all the tuberculosis bacteria it reaches.) Remove rubbish, boards, manure, worn-out equipment, and other items that might shield bacteria.
- Spread manure from infected animals in a thin layer over an area not used by livestock so that sunlight can act to kill the tuberculosis bacteria.

● Decontaminate runways and other soil in which bacteria may be present in large numbers by cultivating the area or planting it to a nonforage crop.

CATTLE

Signs

Tuberculosis usually develops slowly. Infected animals frequently appear healthy; cattle may be infected without showing any signs of the disease. Tests for tuberculosis will detect most infected cattle before the signs appear.

The clinical signs, which frequently were seen in cattle in the United States before the tuberculosis eradication program began, now are rare.

Infected cattle may undergo a gradual loss of weight and condition. Cattle with tuberculosis of the lungs may develop a chronic cough. The disease frequently involves the lymph glands. Enlarged throat and shoulder glands sometimes may be found in the living animal by feeling the affected area. The animal may have trouble breathing if lungs or chest glands are infected. It may develop diarrhea if the infection extends to the intestines. Some cattle with advanced tuberculosis have a rough hair coat and become generally unthrifty.

Testing

The tuberculin skin test is the best way to diagnose tuberculosis infection in a live animal. A small amount of tuberculin—a diagnostic agent—is injected into the skin of the animal to be tested. The injection site is examined in about 72 hours. Veterinarians should perform the test and interpret the results.

The extent of the reaction has little correlation to the degree of infection in the animal. A lesion of tuberculosis that cannot be seen with the naked eye—as well as a visible lesion—may cause a positive reaction to tuberculin.

The usual site for the test in cattle is the caudal fold—the loose skin at the tailhead. When retests are made of infected herds, other areas of the animal's body sometimes are used.

All cattle should be identified with a metal tag in the right ear when tuberculin is injected.

All reactors to the tuberculin test are branded on the left jaw with a letter T, and identified with a special ear tag placed in the left ear. Reactor cattle should be sent to slaughter without delay.

Recommended Practices

To protect cattle against tuberculosis—

● Have your dairy and breeding cattle tested for tuberculosis periodically.

● Remove reactors from the herd promptly.

● Do not bring cattle of unknown health status to your farm.

- Do not allow your cattle to graze on community pastures unless all animals have been tested and are negative to the tuberculin test.
- Do not feed calves raw milk from cows of unknown health status.
- Clean and disinfect contaminated barns and premises promptly after reactors have been sent to slaughter.
- Follow other sound disease-prevention practices.

If you suspect tuberculosis in any of your animals, contact your veterinarian or a State or Federal disease-control official at once.

POULTRY

Tuberculosis may occur in exposed poultry of any age, but it is more commonly found in older birds. On many farms where tuberculosis occurs, hens are kept until they are 2, 3, or 4 years old.

Signs

The liver, spleen, and intestinal walls are usual centers of infection in a fowl, although lesions may form in other locations. Some infected birds become thin, loss of flesh is especially noticeable in the breast muscles. Birds may be less active. Their combs and wattles may be pale, and they may become lame.

Testing

Tuberculin is used to test chickens for tuberculosis. The injection is made in the wattle, which becomes thickened in about 48 hours if the bird is tuberculous.

Recommended Practices

To protect poultry against tuberculosis—

- Keep poultry confined and away from other birds.
- House chickens in a well-designed, properly ventilated poultry house.
- Know the health status of chickens before bringing them to your flock.
- Clean and disinfect poultry houses before placing new chicks in them.
- Rotate the range often. When this is not possible, alternate the use of yards and runways each year. Plant the "retired" area to a non forage crop before reusing it for chickens.
- Dispose of flocks at the end of the first laying season.

SWINE

In the United States, most tuberculosis in swine is caused by the avian type of bacteria. The bovine type, however, causes the severest form of the disease in swine.

Signs

Most swine that have tuberculosis do not develop signs of the disease. In some older hogs, tuberculosis may

cause gradual loss of weight and condition, enlarged joints, and crippling. Lesions often remain localized in lymph glands of the head or in the intestines throughout the animal's life.

Testing

The tuberculin test is used to diagnose tuberculosis in swine. Injections usually are made at the base of the ear, and the results are observed in about 48 hours.

Breeding animals should be identified by tattoo, and tuberculin tested.

If tests show that animals have tuberculosis, slaughter the reactors and eliminate the source of infection.

Recommended Practices

To protect hogs against tuberculosis—

- Do not let poultry mingle with hogs.
- Do not let hogs mingle with cattle.
- Do not feed raw garbage to hogs.
- Do not feed hogs raw milk from animals of unknown health status.
- Have breeding stock tested for tuberculosis.
- Slaughter reactors promptly.
- As soon as the disease is diagnosed, clean and disinfect quarters in which the diseased swine lived.
- If tuberculosis is found in your herd, discover and eliminate the source.

Prepared by

Animal Disease Eradication Division

and

Animal Disease and Parasite Research Division

Agricultural Research Service

This leaflet supersedes Farmers' Bulletin 1069, "Tuberculosis in Livestock—Detection, Control, and Eradication," and Leaflet 102, "Eradicating Tuberculosis From Poultry and Swine."

Washington, D.C.

Growth Through Agricultural Progress

Issued March 1962

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington 25, D.C. – Price 5 cents

U.S. GOVERNMENT PRINTING OFFICE: 1962 O—622036